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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/991,595      | 11/21/2001  | Younggyun Kim        | TI-30699            | 7586             |

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| EXAMINER |
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PATHAK, SUDHANSHU C

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| ART UNIT | PAPER NUMBER |
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2634

DATE MAILED: 03/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/991,595

Applicant(s)

KIM ET AL.

Examiner

Sudhanshu C. Pathak

Art Unit

2634

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on November 21<sup>st</sup>, 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-3 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on November 21<sup>st</sup>, 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>1</u> .   | 6) <input type="checkbox"/> Other: _____                                    |

### DETAILED ACTION

1. Claims 1-to-3 are pending in the application.

#### *Specification*

2. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title.

The abstract of the disclosure is objected to because:

- The abstract on line 3, refers to "A data detectors have been invented...." this should actually be "A data detector has been invented....".
- The abstract on line 8, refers to "Boolean logic (circuit?)". It is not clear what the question mark is for or why the word "circuit" is in parenthesis.

Correction is required for all the issues. See MPEP § 608.01(b).

3. Applicant is reminded of the proper content of an abstract of the disclosure.

A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains. If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure. If the patent is in the nature of an improvement in an old apparatus, process, product, or composition, the abstract should include the technical disclosure of the improvement.

The abstract should not refer to purported merits or speculative applications of the invention and should not compare the invention with the prior art.

4. The disclosure is objected to because of the following:

- The specification on Page 5, line 8, discloses an acronym "ME2PR4"

however the specification does not disclose what the acronym represents.

- The specification on Page 5, line 9, discloses an acronym "ME2PRML" however the specification does not disclose what the acronym represents.
- The specification on Page 5, line 27, discloses an acronym "EPR4" however the specification does not disclose what the acronym represents.
- The specification on Page 6, line 28, discloses  $(1 - D)(1 + D)^2$ , however the specification does not disclose what the variable "D" represents.
- The specification on Page 11, line 1, discloses an acronym "PFS" however the specification does not disclose what the acronym represents.
- The specification on Pages 12-13, discloses a variable " $q_i$ " however the specification does not disclose what the variable " $q_i$ " represents.
- The specification on Page 17, discloses a variable " $p_i$ " however the specification does not disclose what the variable " $p_i$ " represents.
- The specification on Page 25, line 16, discloses an acronym "PR4" however the specification does not disclose what the acronym represents.

Appropriate correction is required.

5. A substitute specification in proper idiomatic English and in compliance with 37 CFR 1.52(a) and (b) is required. The substitute specification filed must be accompanied by a statement that it contains no new matter.

### ***Claim Objections***

6. Claims 2 & 3 are objected to because of the following informalities:

Claim 2 should be re-written, so as to more clearly describe the data detector components. For example, "A data detector.....comprising: a preliminary ambiguity

detector.....samples; and a signal space detector which further includes a filter bank.....slicers, and a boolean logic circuit.”

Claim 3 on line 1, refers to an acronym “EPR4” however the claim does not disclose what the acronym represents.

Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claim on lines 1-2, refers to “A data detector.....comprising: a data detector wherein.....”.

9. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

10. Claim 1 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The claim refers to a ".....the data detector detects data encoded according to a code having time varying constraints." It is not clear as to what is meant by a time varying constraints, this has not been describe in the specification. It is assumed that an example of constraints is disclosed in the specification in regards to an MTR code limits of MTR = 2, which provides a constraint of 2 (Specification, Page 4, lines 4-15). It is however not clear as to what is meant to have constraints to be time varying.

***Claim Rejections - 35 USC § 102***

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

12. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Shafiee et al. (5,936,558).

Regarding to Claim 1, Shafiee discloses a data detector wherein the data detector detects data encoded according to a code having time varying constraints (Abstract, lines 1-7 & Column 1, lines 10-15 & Claim 1 & Fig. 6 & Fig. 8).

***Claim Rejections - 35 USC § 103***

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. Claims 2 & 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shafiee et al. (5,936,558) in view of Kobayashi et al. (6,029,264).

Regarding to Claims 2 & 3, Shafiee discloses a data detector wherein the data detector detects data encoded according to a code having time varying constraints (Abstract, lines 1-7 & Column 1, lines 10-15 & Claim 1 & Fig. 6 & Fig. 8). Shafiee also discloses the data detector comprising a signal space detector (Fig.'s 6, 8 & Abstract, lines 1-7 & Column 3, lines 4-10 & Column 5, lines 40-64 & Column 9, lines 57-62) which further includes a filter bank (Fig.'s 6, elements 216, 218, 220, 226, 222, 244, 246 & Fig. 8, element 324, 326, 328, 346, 344, 346 & Column 12, lines 9-43 & Column 2, lines 53-64), slicers (Fig.'s 6, 8, elements 228-234 & Column 7, lines 32-63 & Column 9, lines 14-38) and a boolean logic circuit (Fig.'s 6, 8, elements 236, 238 & Column 9, lines 14-20). However, Shafiee does not disclose the data detector to comprise a preliminary ambiguity zone detector and the signal space detector operating on an EPR4 channel.

Kobayashi discloses a receiver for receiving a data stream for partial-response channels to improve error correction performance of a system, which retrieves data from memory (digital magnetic recording disk), which is subject to random/burst noise (Column 2, lines 16-50 & Column 4, lines 17-26). Kobayashi also discloses the receiver places an ambiguity zone detector (AZD) (Fig. 7B, element 10 & Fig. 9B & Column 6, lines 15-65 & Column 8, lines 32-67). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention that Kobayashi teaches implementing a ambiguity zone detector and this can be implemented in the

data detector as described Shafiee so as to provide the detector to operate in the error correction and erasure mode of the so as to provide optimum performance and minimal complexity in a random / burst noise environment. Furthermore, there is no criticality in implementing the ambiguity zone detector and a signal space detector operating on an EPR4 channel; this is a matter of design choice.


### ***Conclusion***

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure, it is recommended to the applicant to amend all the claims so as to be patentable over the cited prior art of record. A detailed list of pertinent references is included with this Office Action (See Attached "Notice of References Cited" (PTO-892)).
16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sudhanshu C. Pathak whose telephone number is (571)-272-3038. The examiner can normally be reached on M-F: 9am-6pm.
  - If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on (571)-272-3056
  - The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.



- Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Sudhanshu C. Pathak



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